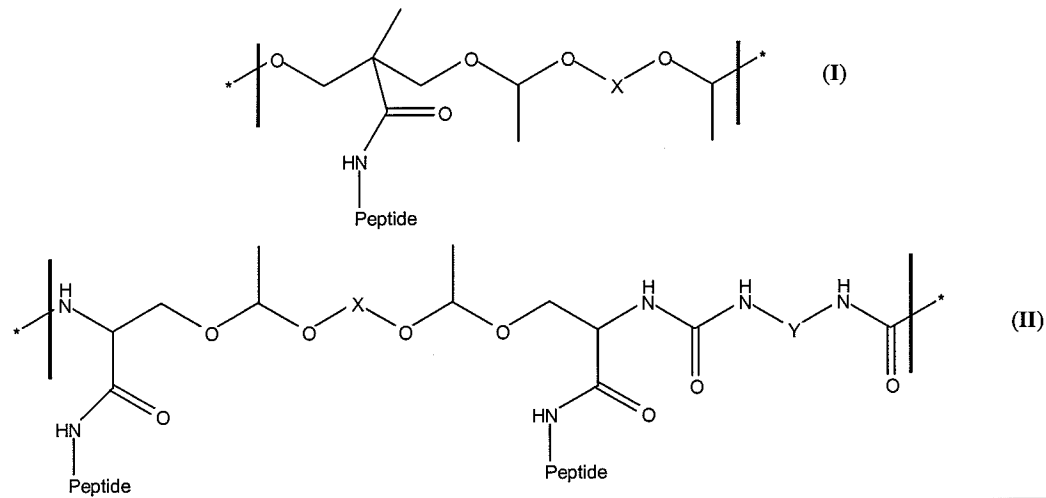


AMENDMENTS TO THE CLAIMS

1. (Currently amended) A ~~complex composition~~ for delivering a ~~an isolated~~ polynucleotide ~~DNA~~ to a cell, comprising: ~~(a) a polynucleotide and (b) a biodegradable polyacetal-peptide, wherein the biodegradable polyacetal-peptide comprises at least one recurring unit represented by a formula selected from the group consisting of (I) and (II):~~



wherein the peptide is selected from SEQ ID NOS: 5, 6 and 8;

2. wherein X is selected from the group consisting of CH₂CH₂, CH₂CH₂CH₂CH₂, CH₂CH₂OCH₂CH₂, and CH₂CH₂OCH₂CH₂OCH₂CH₂; and

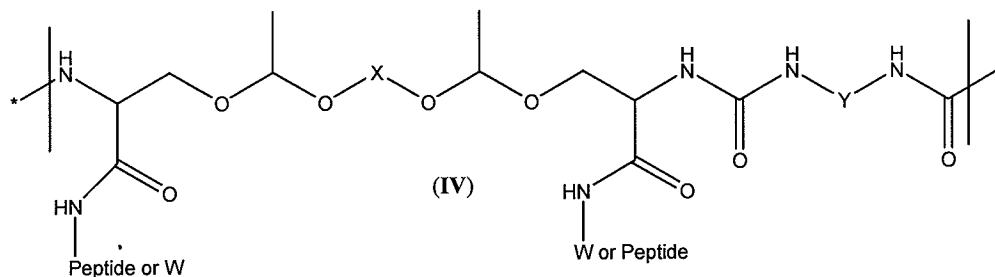
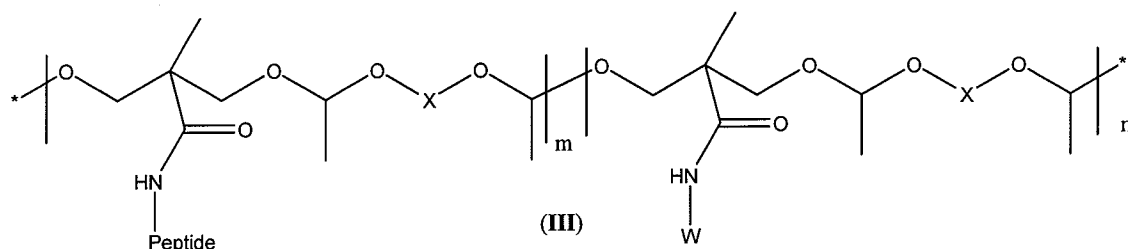
wherein Y is selected from the group consisting of linear or branched C₄H₈, C₅H₁₀, C₆H₁₂, C₇H₁₄, C₈H₁₆, C₁₀H₂₀, and C₁₂H₂₄.

2. (Cancelled)

3. (Currently amended) The ~~complex composition~~ of Claim 1 in which the polynucleotide ~~DNA~~ is selected from the group consisting of plasmid DNA, ~~antisense,~~ and DNA oligomers, ~~siRNA, ribozyme, and aptamer.~~

Claims 4-6. (Cancelled)

7. (Currently amended) The ~~complex composition~~ of Claim 1 in which the biodegradable polyacetal-peptide comprises at least one recurring unit represented by a formula selected from the group consisting of (III) and (IV):



wherein the peptide is selected from SEQ ID NOS: 5, 6 and 8 ~~wherein the peptide is selected from any continuous combination of 2 to 45 amino acids with at least one or more arginine or lysine amino acids from 20 biological amino acids;~~

wherein X is selected from the group consisting of CH_2CH_2 , $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2$, $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$, $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$;

wherein Y is selected from the group consisting of linear or branched C_4H_8 , C_5H_{10} , C_6H_{12} , C_7H_{14} , C_8H_{16} , $\text{C}_{10}\text{H}_{20}$, and $\text{C}_{12}\text{H}_{24}$; and

wherein W is a fatty acid moiety or a targeting ligand selected from the group consisting of galactose, lactose, mannose, transferrin, antibody fragment, and RGD peptide; and

m and n are positive integers.

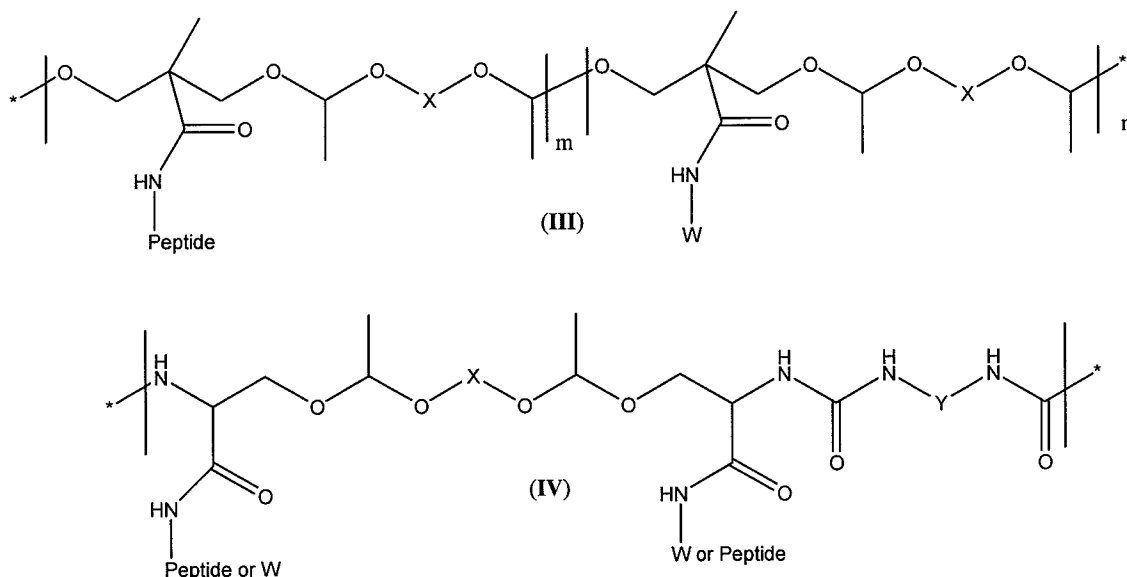
8. (Cancelled)

9. (Withdrawn-Currently amended) A method of making a complex for delivering a polynucleotide to a cell comprising intermixing a solution comprising the polyacetal-peptide of Claim ~~5-1~~ to a second solution comprising the ~~polynucleotide~~ DNA.

10. (Withdrawn) A method for transfecting a cell, comprising contacting the cell with the complex of Claim 9.

11. (Original) A polyacetal-peptide represented by formula (I) or (II).

12. (Withdrawn-Currently amended) A method of cell transfection comprising the steps of:
- (a) seeding cells to be transfected onto a solid support;
 - (b) mixing a ~~polynucleotide-DNA~~ for transfection with a ~~the polyacetal~~ polyacetal-peptide of claim 1;
 - (c) contacting the ~~polynucleotide-DNA~~-polyacetal-peptide mixture with the seeded cells on the solid support; and
 - (d) incubating the solid support to allow transfection.
13. (Withdrawn-Currently amended) The method of claim 12, wherein a weight ratio of the ~~polynucleotide-DNA~~ to the ~~polyacetal~~-polyacetal-peptide is between about 1:4 and 1:50.
14. (Withdrawn-Currently amended) The method of claim 13, wherein the weight ratio of the ~~polynucleotide-DNA~~ to the ~~polyacetal~~-polyacetal-peptide is between about 1:16 and 1:32.
15. (Cancelled)
16. (Withdrawn-Currently amended) The method of claim 12, wherein the polyacetal-peptide comprises at least one recurring unit represented by a formula selected from the group consisting of (III) and (IV):



wherein the peptide is selected from SEQ ID NOS: 5, 6 and 8~~wherein the peptide is selected from any continuous combination of 2 to 45 amino acids with at least one or more arginine or lysine from 20 biological amino acids;~~

wherein X is selected from the group consisting of CH_2CH_2 , $\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2$, $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$, and $\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2$;

wherein Y is selected from the group consisting of linear or branched C_4H_8 , C_5H_{10} , C_6H_{12} , C_7H_{14} , C_8H_{16} , $\text{C}_{10}\text{H}_{20}$, and $\text{C}_{12}\text{H}_{24}$;

wherein W is a fatty acid moiety or a targeting ligand selected from the group consisting of galactose, lactose, mannose, transferrin, antibody fragment, and RGD peptide;

and m and n are positive integers.

17. (Withdrawn) The method of claim 12, wherein the solid support is selected from the group consisting of a multiwell plate, a dish, a flask, a tube, a slide and an implanted device.

Claims 18-20. (Cancelled)

21. (Withdrawn-Currently amended) The method of claim ~~18~~12, wherein the DNA is circular, linear or single-strand oligonucleotide.

22. (Withdrawn) The method of claim 12, wherein the cells are prokaryotic or eukaryotic cells.

23. (Withdrawn) The method of claim 22, wherein the eukaryotic cells are yeast, plant or animal cells.

24. (Withdrawn) The method of claim 23, wherein the animal cells are mammalian cells.

25. (Withdrawn) The method of claim 24, wherein the mammalian cells are selected from the group consisting of hematopoietic cells, neuronal cells, pancreatic cells, hepatic cells, chondrocytes, osteocytes, and myocytes.

26. (Withdrawn) The method of claim 25, wherein the neuronal cells are NT-2 cells.

27. (Withdrawn) The method of claim 12, wherein the cells are fully differentiated cells or progenitor/stem cells.